



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER OF PATENTS AND TRADEMARKS  
Washington, D.C. 20231  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/037,852	01/04/2002	Michael A. Filipiak	63428-063	6735

26096 7590 03/26/2003

CARLSON, GASKEY & OLDS, P.C.  
400 WEST MAPLE ROAD  
SUITE 350  
BIRMINGHAM, MI 48009

EXAMINER

VAN PELT, BRADLEY J

ART UNIT	PAPER NUMBER
----------	--------------

3682

DATE MAILED: 03/26/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

# Office Action Summary

Application No.

10/037,852

Applicant(s)

FILIPIAK ET AL.

Examiner

Bradley J Van Pelt

Art Unit

3682

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

## Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 1-22 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-22 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 27 February 2002 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

## Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☒ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

## Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) \_\_\_\_.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_.

**DETAILED ACTION**

***Claim Rejections - 35 USC § 102***

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claims 1 and 2 are rejected under 35 U.S.C. 102(b) as being anticipated by Chen (USPN 5,973,248).

Chen discloses a ball and socket assembly (30) comprising: a socket component including a pair of sockets (331, 341) and a pair of opposed inclined edges (insides of sockets are opposed inclined edges); and a ball component (41, 40) received in each of said pair of opposing sockets; wherein said ball component includes a ball (41) and an arm (40), and said ball is received in said socket to allow for pivotal adjustment of said arm.

3. Claim 22 is rejected under 35 U.S.C. 102(b) as being anticipated by Herbermann (USPN 5,383,738).

Herbermann discloses a method for supporting an object with a robotic arm (column 2, lines 20-21) comprising the steps of: providing a socket component including a pair of sockets (30) and a pair of opposed inclined edges (30 includes inclined edge and each arm section edge opposes each other); and providing a ball component including an arm (26) and a ball (32) which is received in each of said opposing sockets; pivoting said ball in said socket to allow for pivotal adjustment of said arm; and locking said ball in said socket.

*Claim Rejections - 35 USC § 103*

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claim 3 is rejected under 35 U.S.C. 103(a) as being unpatentable over Chen (USPN 5,973,248), as applied to claim 2.

Chen discloses the claimed invention, except for the balls are approximately 1.75 inch in diameter and said arms are approximately 1.25 inch in diameter.

It would have been an obvious matter to change the size of the diameters of the balls and arms, since such a modification would have involved a mere change in size of a component. A change in size is generally recognized as being within the level of ordinary skill in the art.

6. Claims 4-12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Chen (USPN 5,973,248), as applied to claims 1 and 2, in view of Herbermann (USPN 5,383,738).

Chen discloses the sockets extend over more than one half of a surface area of said balls; wherein said socket component includes a first socket half and a second socket half secured together to form said pair of sockets; wherein said clamp halves are secured together by a pair of bolts (353, 353') located substantially between said pair of sockets; wherein said clamp halves are secured together by four bolts (333, 333, 333', 333'), one of said bolts being located substantially over one of said sockets, another of said bolts being located substantially under said socket, one of said bolts being located substantially over the other of said sockets and one of said bolts being located substantially under the other of said sockets; further including a gap (see fig.

3) between said clamp halves; wherein said pair of opposed edges are inclined approximately 75° (since socket is circular an infinite number of angles occurs in the socket including 75°) from a lower surface of said assembly.

Chen does not disclose said balls are made of a material harder than a material of said sockets;

said sockets are made of aluminum;

and said balls are serrated.

Herbermann discloses balls made of a material harder than a material of said sockets (see column 2, lines 47-48);

said sockets are made of aluminum (see column 3, lines 63-65);

and said balls are serrated (column 2, lines 58-59).

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the ball joint mechanism of Chen by forming the hardness of the balls greater than the hardness of the sockets for the purpose of making the female socket more prone to radial deformation, furthermore, so the ball joint will be able to support heavier loads (see column 1, lines 31-37 of Herbermann).

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the ball joint mechanism of Chen to form the sockets of aluminum for the purpose of lowering the weight of the mechanism; thus improving the efficiency and overall cost of operation of the device.

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the balls of Chen with serrated surfaces for the purpose of reducing any tendency of slipping between the ball and the socket (see column 2, lines 64-65 of Herbermann).

7. Claims 13-21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Herbermann (USPN 5,383,738) in view of Chen (USPN 5,973,248).

Herbermann disclose a robotic arm (column 2, lines 20-21) comprising: a ball and a socket assembly including a socket component a pair of sockets (30) and a pair of opposed inclined edges (30 includes inclined edge and each robot arm section edge opposes each other), and a pair of ball components (32) each having a ball received in one of said sockets and an arm (26), movement of said ball in said socket allowing for pivotal adjustment of said arm; wherein said balls are made of material harder than a material of said sockets (see notes above); wherein said robotic arm includes a plurality of said ball and socket assemblies (see fig. 1); wherein said pair of opposed ends are inclined approximately 75° from a lower surface of said assembly; wherein said balls are serrated (see notes above).

Herbermann do not disclose a socket component having a first socket half and a second socket half secured together; wherein said clamp halves are secured together by a pair of bolts located substantially between said pair of sockets; wherein said clamp halves are secured together by four bolts, one of being located substantially over one of said sockets, another of said bolts being located substantially under said socket, one of said bolts being located substantially over the other of said sockets, and one of said bolts being located substantially under the other of said sockets; a gap between halves; and

wherein said balls are approximately 1.75 inches in diameter and said arms are approximately 1.25 inches in diameter;

Chen disclose a socket component having a first socket half and a second socket half secured together; wherein said clamp halves are secured together by a pair of bolts located substantially between said pair of sockets; wherein said clamp halves are secured together by four bolts, one of being located substantially over one of said sockets, another of said bolts being located substantially under said socket, one of said bolts being located substantially over the other of said sockets, and one of said bolts being located substantially under the other of said sockets; and a gap between halves (see notes above).

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the robotic arm of Herbermann with first and second halves in combination with bolts for the purpose of having a non-permanent structure; subsequently, increasing the maintainanceability of the robot arm.

It would have been an obvious matter to change the size of the diameters of the balls and arms, since such a modification would have involved a mere change in size of a component. A change in size is generally recognized as being within the level of ordinary skill in the art.

### ***Conclusion***

8. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Vandenberg et al. (USPN 3,962,575), Herbermann et al. (USPN 4,898,490), Ghim (USPN 5,425,636), Rosheim (USPN 5,692,412).

Art Unit: 3682

9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Bradley J Van Pelt whose telephone number is (703)305-8176.

The examiner can normally be reached on M-Th 7:00-4:30, 2nd F 7:00-3:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David A Bucci can be reached on (703)308-3668. The fax phone numbers for the organization where this application or proceeding is assigned are (703)746-9391 for regular communications and (703)305-3597 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703)308-2168.

BJVP  
March 18, 2003

*William C. Joyce* 3/20/03  
William C. Joyce  
Patent Examiner